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Principles of Program Analysis

- The only book providing an introduction to the active area of program analysis for advanced students, researchers, and professionals
- Tested in various courses: Aarhus, Imperial College (London), Pisa, Saarbrücken, Tel Aviv, Copenhagen, Schloss Dagstuhl International Conference and Research Center
- Power Point transparencies will be made available online

Program analysis concerns static techniques for computing reliable approximate information about the dynamic behaviour of programs. Applications include compilers (for code improvement), software validation (for detecting errors in algorithms or breaches of security) and transformations between data representation (for solving problems such as the Y2K problem). This book is unique in giving an overview of the four major approaches to program analysis: data flow analysis, constraint based analysis, abstract interpretation, and type and effect systems. The presentation demonstrates the extensive similarities between the approaches; this will aid the reader in choosing the right approach and in enhancing it with insights from the other approaches. The book covers basic semantic properties as well as more advanced algorithmic techniques. The book is aimed at M.Sc. and Ph.D. students but will be valuable also for experienced researchers and professionals.

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